An Analysis on the Relation between Psychological Hardiness and Mental Health of Heart and Diabetic Patients and Healthy People

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ABSTRACT

The purpose of the present study is to investigate the relation between psychological hardiness and mental health of heart and diabetic patients and healthy people. The statistical population included 180 people consisting of 60 heart patients (30 men and 30 women) referred to Javahery Heart Clinic of Tehran and Raouf Charity Clinic, 60 diabetic patients (30 men and 30 women) of Tehran Diabetic Associations’ members and 60 healthy people (30 men and 30 women). The study used descriptive-correlation method. The required data were collected using Ahwaz Hardiness Questionnaire (AHI) and 28-item General Health Questionnaire (GHQ). To analyze the obtained data, descriptive statistics (frequency, mean, standard deviation) and inferential statistics (Pearson correlation and regression analysis) were employed. As the findings revealed, there is a significant negative correlation between total score of psychological hardiness and total score of mental health in the two groups at the confidence level of 0.01. The highest amount of correlation belongs to the group of the diabetic patients (r (56) = -0.479, P < 0.01) and the lowest correlation belongs to the healthy people (r (60) = -0.326, P < 0.01). In other words, low score in the mental health questionnaire indicates high mental health; therefore, it can be concluded that the increase of psychological hardiness leads to the increase of mental health and vice versa. Notably, this relation cannot indicate the causality relation between the two variables.

INTRODUCTION

For a long time, people have inherently sought a good life and in this regard, they have attempted to make the best use of their talents and capabilities to improve their life conditions.

The concept of hardiness was primarily proposed by Kobasa in the late 1970s as individual endurance and vitality factor. This term was initially employed to investigate the relation between stress and health. The primary findings of Kobasa revealed that people who experience high stress but remain healthy have different personality structure relative to those who experience high stress and are ill. The main context of these personality structures was named hardiness. Researchers have defined hardiness as the factor improving general health [17], that is the factor enabling individuals to physically and mentally remain healthy in addition to cope with stressful situations or experiences [18]. Hardiness is a multi-dimensional structure consisting of three dimensions of commitment, control and challenge. People who are strong in commitment aspect well understand the concept of life and what occurs around them. These individuals find a sense of purposefulness since they have enough time and energy against events, individuals and surrounding objects. Low commitment is considered as the prevention and passiveness of individuals. The second aspect of hardiness is control; that is, individuals with control tend to act as if they can influence their life consequences. A person with high headiness is characterized with higher commitment, control and challenge [19].

Methodology:

In the present study, psychological hardiness is considered as a predictive variable and mental health is regarded as the criterion variable. Since the purpose of the present study is to identify the relation between the criterion variable (mental health) and the predictive variable (psychological hardiness), multi-variable correlation research method was used.
The statistical population included heart patients referred to Javahery Heart Clinic of Tehran and Raouf Charity Clinic, diabetic patients of Tehran Diabetic Associations’ members and healthy people. The sample size is 180 people consisting of 60 heart patients (30 men and 30 women) referred to Javahery Heart Clinic of Tehran and Raouf Charity Clinic, 60 diabetic patients (30 men and 30 women) of Tehran Diabetic Associations’ members and 60 healthy people (30 men and 30 women).

Ahwaz Hardiness Inventory (AHI):
AHI is a self-reporting paper and pencil test including 27 articles. The questionnaire has been constructed by Najarian, Kiamarsi and Mehrabi Zade Honarmand, the faculty members of Psychology Group of Shahid Chamran University in Ahwaz. In 1998, the questionnaire’s validity was evaluated using a 523-people sample in Ahwaz Islamic Azad University. Testing hardness, a total score was obtained for the sample regardless of the components of commitment, control and challenge.

AHI is scored in such a way that the subjects responded to one of the four items of never, rarely, sometimes, and often and the responses are scored based on the values of 0 to 3. Except that the articles 6, 7, 10, 13, 17, and 21 which indicate high hardiness in individuals. The range of score in the questionnaire is 0-81. High score indicates high psychological hardiness.

To evaluate the reliability of AHI, Najarian et al used test-retest and internal consistency methods. The correlation coefficient between test and retest (with the interval of 6 weeks) in a 119-people sample was reported 0.84 and 0.85 for girls and boys, respectively. In internal consistency method, Cronbach’s alpha was obtained 0.76 for all the subjects, indicating a good level of reliability. In the present work, Cronbach’s alpha coefficients were computed for the entire the sample.

To evaluate the validity of the so called questionnaire, criterion-related concurrent method was employed. This questionnaire was simultaneously used with four questionnaires of ANQ, ADI, MASAI, and hardiness structural scale using bisectional method and Cronbach’s alpha. The correlation coefficient between all the subjects was 0.55, 0.70 and 0.44, respectively which were significant at the confidence level of 0.01. Also, correlation coefficient of self-actualization was 0.65. There was a significant correlation between the validity of structural hardness and hardness scale at the confidence level of 0.05.

Therefore, with respect to the standardness of the questionnaire and abundant researches performed on psychological hardiness, all indicate a high validity for the test; in other words, it is one of the best instruments evaluating hardness in individuals.

General Health Questionnaire (GHQ):
GHQ is a 28-item scale proposed by Goldberg (screening questionnaire) which is based on self-reporting. It is used in clinical collections to identify those with mental disorder. In GHQ, two major classes of phenomena are considered: inability of individuals to have activation (healthy) and the incidence of new phenomena with cause-creating nature. Among mental health’s screening instruments, GHQ is one of the most commonly used ones throughout the world. In other words, it is the most valid screening instrument determining psychological problems and identifying positive cases in general population. GHQ was regulated by Goldberg for the first time. Its main form includes 60 phrases and its short form includes 12 to 28 phrases and has been translated into 30 languages of the world. In 70 countries, psychometrical studies have been performed on the so called scale. According to researchers, various forms of GHQ evaluate disease signs of individuals from one month ago to the time of test administration. The 28-item form of GHQ includes the following scales:

1. Physical signs (A)
2. Anxiety and insomnia (B)
3. Impaired social activation (C)
4. Depression (D)

Physical signs subscales (A):
Physical signs subscales include some cases regarding individuals’ feeling about their physical health and fatigue. This subscale evaluates physical sensory receptions which are often accompanied with emotional excitements such as feeling of weakness and illness, cooling or warming body, etc. Items 1 to 7 are related to this subscale.

Anxiety and Insomnia Subscale (B):
It includes the issues related to anxiety and insomnia such as insomnia due to stress, anger, panic, and worry. Items 8 to 14 are pertained to this subscale.
Impaired Social Activation (C):
This subscale measures the ability of individuals to cope with professional needs and daily life affairs. It also reveals their emotions about the way of coping with common life situations such as feeling of satisfaction about the way of doing things, the ability of making decision and enjoying daily life activities. Items 15 to 21 are related to this subscale.

Depression Subscale (D):
Depression subscale involves intense depression and certain willingness to suicide such as feeling of absurdity, frustration and suicide thought. Items 22 to 28 are related to this subscale.

Total Score of Scale
Out of total scores of the subscales, total score of the scale is obtained. Items 1 to 28 are related to total scores of the scale.

External Validity and Reliability:
Regarding the validity of GHQ, many studies have been performed. Psychometrics studies of GHQ versions show that 28-item version (GHQ-28) has the highest sensitivity and validity relative to other versions. Goldberg and Williams investigated psychometrics features of various versions in 43 different countries of the world. As they revealed, GHQ-28 has the highest validity and more appropriate sensitivity compared to other versions. This version was extracted according to factor analysis performed by Goldberg and Hillier including four basic factors of physical signs, anxiety and insomnia signs, social function disorder, and depression scale. Factor structure, reliability and validity of GHQ-28 were also evaluated by Gibbons in El Salvador. The sample included 732 students. Likert Scale-based scoring, basic components analysis and Varimax rotation were used in this regard. Using test-retest method, reliability coefficient of the questionnaire was obtained 0.74 and considering cut-off point of 6.7, the sensitivity of the test and its feature were obtained 0.88 and 84.2, respectively. Hobbes investigated psychometrics features of GHQ-28 in New Zealand using a 328-person sample. The sensitivity of the test and its feature was obtained 95.7 and 67.7. Additionally, the correlation between total score and 4 scales was obtained 0.80, 0.88, 0.65, and 0.79, respectively.

Iranian Validity and Reliability:
In Iran, few studies have been performed regarding the quality of psychometrics and structure factor of GHO. Taghavi investigated psychometrics features of GHQ-28 using a 92-person sample of students in Shiraz University. The coefficients of validity, retest, bi-sectional, and Cronbach’s alpha were obtained 0.70, 0.93 and 0.90, respectively. Concurrent validity coefficient was computed 0.55 by Midlex Questionnaire and the structure validity was computed 0.72-0.87. Analyzing the factors, he also extracted four factors of depression, anxiety, social and physical function disorder. These factors explained 58% of variance. In this research, the four factors were also extracted and total correlation score was 0.35-0.87.

Palahang [5] performed primary evaluations of GHQ-28 to prepare it for an epidemiological study in an 80-person sample. The sensitivity, feature, efficiency, and total error amount of the test classification were obtained 0.88, 0.74, 0.80, and 0.20, respectively.

The results obtained by Ebrahimi [2] from a study on 80 patients and 80 normal people revealed that physical signs, anxiety and insomnia, social function disorder, and depression explain 69.54% of the variance. The greatest factor loading is related to the first factor and the least factor loading is pertained to the fourth factor.

Regarding the validity of the questionnaire, the criterion and predictive validity of GHQ-28 were obtained 0.78 using correlation coefficients. Regarding the reliability of the questionnaire, Cronbach’s alpha, Spearman Coefficient, and Guttman bisection coefficient were computed 0.97, 0.90 and 0.90, respectively. The sensitivity, feature, efficiency, and total error of classification were also computed 0.80, 0.99, 0.89, and 0.11. Generally, the questionnaire has a high structure, criterion and predictive validity to determine mental health situation of various clinical and normal populations [2].

Scoring Method:
Each response from right to left, one of the scores of 0, 1, 2, or 3 are given.

a. 0
b. 1
c. 2
d. 3

The score of each individual in each subscale will be from 0 to 21 a din entire the questionnaire, the score will be from 0 to 84. The scores of each individual are separately computed and then, the score of the subscales are summed up to gain the total score. In this questionnaire, the lower score indicates the better mental health.
Table 1: Cut scores in each of the subscales of GHQ

<table>
<thead>
<tr>
<th>General health status</th>
<th>Subscales’ scores</th>
<th>Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td>0-6</td>
<td>0-22</td>
</tr>
<tr>
<td>Mild problem</td>
<td>7-11</td>
<td>40-23</td>
</tr>
<tr>
<td>Moderate problem</td>
<td>12-16</td>
<td>41-60</td>
</tr>
<tr>
<td>Intense problem</td>
<td>17-21</td>
<td>61-84</td>
</tr>
</tbody>
</table>

As shown in Table 1, the score above 16 in each subscale and the score above 60 in total score indicates intense problem.

Moreover, in the reported Iranian studies, the best cut-off score in men and women is obtained 22 and 21 based on Likert scale and in another study; the best cut-off point has been determined 23 regardless of gender. Therefore, each group may have different cut point.

Findings:

Table 2: Correlation test results for the relation between psychological hardiness and mental health

<table>
<thead>
<tr>
<th>Variable</th>
<th>Heart patients</th>
<th>Diabetic disease</th>
<th>Healthy people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological hardiness and mental health</td>
<td>-0.413**</td>
<td>-0.479**</td>
<td>-0.326**</td>
</tr>
</tbody>
</table>

** = P<0.01    * = P<0.05

The research findings revealed that there is a significant negative correlation between total score of psychological hardiness and the total score of mental health in all the three groups at the level of 0.01. The highest correlation belongs to diabetic group (r(56) = -0.479 and P < 0.1) and the lowest correlation belongs to the normal group (r(60) = -0.326, P < 0.01). Considering the fact that low score in mental health questionnaire indicates high mental, it can be concluded that increasing psychological hardiness leads to the increase of mental health and vice versa. Notably, this relation cannot be a causality relation between the two variables.

Table 3: The summary of one-way variance analysis for the relation between psychological hardiness in the three groups

<table>
<thead>
<tr>
<th>Variation source</th>
<th>Sum of squares</th>
<th>Degree of freedom</th>
<th>Mean of squares</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between group</td>
<td>64.544</td>
<td>2</td>
<td>32.272</td>
<td>0.172</td>
<td>0.842</td>
</tr>
<tr>
<td>Within group</td>
<td>33168.850</td>
<td>177</td>
<td>187.395</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>33233.394</td>
<td>179</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shown in Table 3, the computed f-value for hardiness scores is not significant at the level of 0.05 (F (2,177) = 0.172 < 0.05), indicating that there is no significant difference between psychological hardiness in the three groups.

Table 4: The summary of one-way variance analysis for mental health in the three groups

<table>
<thead>
<tr>
<th>Variation source</th>
<th>Sum of squares</th>
<th>Degree of freedom</th>
<th>Mean of squares</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between group</td>
<td>293.278</td>
<td>2</td>
<td>146.639</td>
<td>1.037</td>
<td>0.357</td>
</tr>
<tr>
<td>Within group</td>
<td>24184.216</td>
<td>171</td>
<td>141.428</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>24477.494</td>
<td>173</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shown in Table 3, the computed f-value for hardiness scores is not significant at the level of 0.05 (F (2,137) = 1.037 > 0.05), indicating that there is no significant difference between mental health in the three groups.

Table 5: The results of the regression model’s significance to separately predict mental health in the three groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Variable</th>
<th>b</th>
<th>Criterion error</th>
<th>Beta</th>
<th>t statistics</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart patient</td>
<td>Constant</td>
<td>0.001</td>
<td>6.741</td>
<td>-0.158</td>
<td>9.291</td>
<td>62.628</td>
</tr>
<tr>
<td></td>
<td>hardness</td>
<td>0.222</td>
<td>-1.236</td>
<td>0.112</td>
<td>-0.138</td>
<td></td>
</tr>
<tr>
<td>Diabetic patient</td>
<td>Constant</td>
<td>0.001</td>
<td>5.197</td>
<td>-0.414</td>
<td>9.939</td>
<td>51.653</td>
</tr>
<tr>
<td></td>
<td>hardness</td>
<td>0.002</td>
<td>-3.200</td>
<td>0.111</td>
<td>-0.356</td>
<td></td>
</tr>
<tr>
<td>Healthy people</td>
<td>Constant</td>
<td>0.001</td>
<td>5.806</td>
<td>1.192</td>
<td>66.719</td>
<td></td>
</tr>
<tr>
<td></td>
<td>hardness</td>
<td>0.001</td>
<td>-5.575</td>
<td>0.095</td>
<td>-0.527</td>
<td></td>
</tr>
</tbody>
</table>

Given that computed t-values are significant at the level of 0.01, the linear regression model is significant and accordingly, there is a linear relation between psychological hardiness and mental health.

In the diabetic patients, psychological hardiness can predict mental health and t-test is significant at the level of less than 0.01 for its regression coefficient significance.

In the healthy people, psychological hardiness can also predict mental health and t-test is significant at the level of less than 0.01 for its regression coefficient significance.
Conclusion:
Mental health and psychological hardiness is a wide discussion. Nowadays, most of researchers emphasize on the role of psychological hardiness as a factor protecting individuals against mental pressure. In the current complex world, mental health and psychological hardiness are considered as one of the most important and comprehensive human activities [20]. The research findings showed that the increase of mental health in heart patients, diabetic patients and healthy people leads to the increase of their psychological hardiness. This finding is consistent with the result reported by Maddi [15], Bingham and Strinker [12], Amerikaner et al. [11], Clegg and Bradley, Kalantar [7], Verdi [6] and Shafi Abadi. It seems that hardiness, as an internal resistance resource, decreases the negative effects of stress and prevents the incidence of physical and mental disorders.

The results indicating the negative relation of physical signs, impaired social function, anxiety, and depression with psychological hardiness found in the present paper is consistent with the findings obtained by Maddi and Kobasa [15], Funk and Huston [13], Clegg and Bradley, Kalantar [7], Homaii [9], Verdi [6], and Shafi Abadi. Some of the researchers found a significant negative relation of patience and hardiness with anxiety and depression, indicating that patient people can overcome unpleasant effects. Kalantar [7] and Verdi [6] revealed that there is a significant negative correlation between psychological hardiness and mental disease. Therefore, it can be said that people with problem in mental health components have lower hardiness and they may use regressive fighting strategies when facing with stressful events; for example, these people may tend to regression and passiveness or generally tend to behavioral and cognitive isolation. The disadvantage of such a strategy is that they not only cannot solve the problem or change the situation but they cause the increase of emotional problems and incompatibility. To sum up, it can be concluded that people with high mental health have higher hardiness and hardiness acts as a protective barrier against stressful factors. Score distribution of psychological hardiness has been normal in the three groups. There has been no difference in the mean scores of psychological hardiness in the three groups; however, the highest mean belongs to the normal group and the lowest mean belongs to diabetic patients. Accordingly, psychological hardiness in healthy people is higher than heart patients and heart patients have higher psychological hardiness relative to diabetic patients.

REFERENCES